

Amendment To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for electrofilling a metal or alloy inside at least one opening located in a front surface of a substrate, said front surface of the substrate comprises the at least one opening and a top field surrounding the at least one opening, said at least one opening comprises a bottom and sidewalls surfaces wherein at least the bottom surface comprises an exposed metallic surface, said method includes steps of:

immersing the substrate in an activation ☐ or wetting ☐ solution;

applying ultrasonic or megasonic vibrations to the substrate and to the activation ☐ or wetting ☐ solution; and

after commencing ultrasonic or megasonic vibrations:

applying high pressure jets of an electrolyte jets to the substrate, said electrolyte comprises metallic ions of said metal or alloy; and

applying an electroplating current to the substrate to electroplate said metal or alloy inside the at least one opening.

Claim 2 (previously presented): The method of claim 1 wherein the electrolyte further comprises at least one inhibitor additive.

Claim 3 (new): The method of claim 2 wherein the activation or wetting solution is different than the electrolyte.

Claim 4 (new): The method of claim 2 wherein the activation or wetting solution is the same as the electrolyte.

Claim 5 (new): The method of claim 4 wherein the steps of immersing the substrate in an activation (or wetting) solution, applying ultrasonic or megasonic vibrations to the substrate, applying high pressure jets of an electrolyte to the substrate, and applying an electroplating current to the substrate, are performed in the same chamber.

Claim 6 (new): The method of claim 5 wherein the step of applying ultrasonic or megasonic vibrations to the substrate is extended to coincide with at least a portion of the steps of applying high pressure jets of an electrolyte to the substrate, and applying an electroplating current to the substrate.

Claim 7 (new): A method for electroplating a metal or alloy inside at least one opening surrounded by a field on a substrate, said at least one opening comprising sidewalls surfaces, wherein at least the field and the sidewalls surfaces comprise an exposed metallic surface, and the method comprising the steps of:

(a) immersing the substrate in an activation or wetting solution;

(b) applying ultrasonic or megasonic vibrations to the substrate and to the activation or wetting solution; and

after commencing step (b):

(c) applying high pressure jets of an electrolyte to the substrate, said electrolyte comprising metallic ions of said metal or alloy and at least one inhibitor additive; and

(d) applying an electroplating current to the substrate to electroplate said metal or alloy inside the at least one opening.

Claim 8 (new): The method of claim 7 wherein the activation or wetting solution is different than the electrolyte.

Claim 9 (new): The method of claim 7 wherein the activation or wetting solution is the same as the electrolyte.

Claim 10 (new): The method of claim 7 wherein steps (a) and (b) are performed in one chamber, and steps (c) and (d) are performed in another chamber.

Claim 11 (new): The method of claim 9 wherein steps (a), (b), (c), and (d) are performed in the same chamber.

Claim 12 (new): The method of claim 11 wherein step (b) is extended to coincide with at least a portion of steps (c) and (d).

Claim 13 (new): A method for electroplating a metal or alloy inside at least one opening located in a front surface of a substrate, said method including the steps of:

(a) subjecting the front surface of the substrate to one or more treatments selected from a group consisting of plasma ashing, sputter etching, plasma etching, and ion bombardment; followed by

(b) applying high pressure jets of an electrolyte to the substrate, said electrolyte comprising metallic ions of said metal or alloy and at least one inhibitor additive; and

(c) applying an electroplating current to the substrate to electroplate said metal or alloy inside the at least one opening.

Claim 14 (new): The method of claim 13 wherein the front surface of the substrate is treated by plasma ashing.

Claim 15 (new): The method of claim 14 wherein the plasma ashing comprises a two-step process, said process comprising an oxygen-containing plasma in the first step, and hydrogen-containing plasma in the second step.

Claim 16 (new): The method of claim 14 wherein following step (a), and prior to steps (b) and (c), the substrate is immersed in an activation or wetting solution.

Claim 17 (new): The method of claim 16 wherein the activation solution is the same as the electrolyte.

Claim 18 (new): The method of claim 16 wherein the activation solution is different than the electrolyte.

Claim 19 (new): The method of claim 17 including a further step of:
applying ultrasonic or megasonic vibrations to the substrate and to the electrolyte, wherein the further step follows step (a), and commences prior to step (c).

Claim 20 (new): The method of claim 19 wherein the further step is extended to coincide with at least a portion of steps (b) and (c).